REMARKS

This is intended as a full and complete response to the Office Action dated February 23, 2005, having a shortened statutory period for response set to expire on May 23, 2005. Please reconsider the claims pending in the application for reasons discussed below.

In the specification, the paragraphs [0009], [0035], [0038], [0050], [0057], [0062], and [0072] have been amended to correct minor editorial problems. Applicants submit that the changes made herein do not introduce new matter.

Claims 1-3, 5-13, and 15-18 remain pending in the application and are shown above. Claims 4, 14, 19, and 20 have been canceled by Applicants. Claims 1-20 are rejected. Reconsideration of the rejected claims is requested for reasons presented below.

Applicants have amended claims 1, 11-13, and 15 to more clearly illustrate the claimed subject matter. Applicants have amended claims 2, 5, and 7 in view of the amendment of claim 1. Applicants have amended claim 10 to include the subject matter of former claim 15 and have amended claim 15 to claim an additional aspect of the invention. Applicants have amended claim 17 in view of the amendment of claim 15. Applicants have added claim 21 to claim additional aspects of the invention. Applicants submit that the changes made herein do not introduce new matter.

Claims 1, 2, 4, 6, 7, and 9-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sugahara, et al.* (U.S. Patent No. 5,989,998). Applicants respectfully submit that *Sugahara, et al.* does not teach or suggest depositing a low dielectric constant oxidized organosilane layer in a plasma enhanced process from a mixture comprising an organosilane compound and an oxidizing gas. *Sugahara, et al.* describes depositing an interlayer insulating film from an organic silicon compound that is caused to either undergo plasma polymerization or react with an oxidizing agent. However, *Sugahara, et al.* does not describe or suggest depositing a low dielectric constant oxidized organosilane layer in a process that uses both plasma and an oxidizing agent. Thus, *Sugahara, et al.* does not teach, show, or suggest a method comprising depositing on a substrate a plurality of layers, wherein one or more of the

layers is a low dielectric constant oxidized organosilane layer comprising carbon, wherein the low dielectric constant oxidized organosilane layer is deposited in a plasma enhanced process from a mixture comprising an organosilane compound and an oxidizing gas, the carbon content of the low dielectric constant oxidized organosilane layer is from 1% to 50% by atomic weight, and a top layer of the plurality of layers is a photoresist, as recited in amended claim 1. Applicants respectfully request withdrawal of the rejection of claim 1 and of claims 2, 6, 7, and 9-10, which depend thereon.

Regarding claim 11, Applicants respectfully submit that *Sugahara, et al.* shows and describes a stack of layers including two insulating layers deposited from an organosilicon compound and two silicon nitride layers (Figure 3A, column 8, lines 58-63), but does not teach or suggest depositing a plurality of layers comprising one low dielectric constant oxidized organosilane layer comprising carbon and a parylene, FSG, or silicon oxide layer. Furthermore, *Sugahara, et al.* does not describe or suggest depositing a low dielectric constant oxidized organosilane layer in a process that uses both plasma and an oxidizing agent. Thus, *Sugahara, et al.* does not teach, show, or suggest a method comprising depositing on a substrate a plurality of layers, wherein the plurality of layers comprises one low dielectric constant oxidized organosilane layer comprising carbon, wherein the low dielectric constant oxidized organosilane layer is deposited in a plasma enhanced process from a mixture comprising an organosilane compound and an oxidizing gas and the carbon content of the low dielectric constant oxidized organosilane layer is from 1% to 50% by atomic weight, a layer selected from the group consisting of parylene, FSG, and silicon oxide layers, and a top layer of the plurality of layers that is a photoresist, as recited in claim 11. Applicants respectfully request withdrawal of the rejection of claim 11 and of claims 12-13, which depend thereon.

Regarding claim 15, Applicants submit that *Sugahara, et al.* describes using an organic silicon compound having the formula $R^1_xSi(OR^2)_{4-x}$ or $R^1_xSiH_{4-x}$, wherein R^1 is a phenyl group or a vinyl group, R^2 is an alkyl group, and x is an integer of 1 to 3 to deposit an insulating layer but does not teach or suggest using a methylsilane compound to deposit a low dielectric constant oxidized organosilane layer comprising carbon. Furthermore, Applicants submit that *Sugahara, et al.* does not motivate using a

methylsilane compound to deposit a low dielectric constant oxidized organosilane layer as *Sugahara, et al.* teaches that the presence of $SiCH_3$ in conventional organic SOG films is disadvantageous, since it reacts with oxygen during subsequent processing, resulting in the formation of water that contaminates the device containing the layer (column 2, lines 60-67). *Sugahara, et al.* indicates that by using an organic silicon compound having the formula $R^1_xSi(OR^2)_{4-x}$ or $R^1_xSiH_{4-x}$, wherein R^1 is a phenyl group or a vinyl group, R^2 is an alkyl group, and x is an integer of 1 to 3, the proportion of $SiCH_3$ in the layer is much lower than the amount contained in a conventional organic SOG film (column 3, lines 44-65). Thus, Applicants submit that *Sugahara, et al.* teaches away from depositing a film using a methylsilane compound, which contains a $Si\text{-}CH_3$ bond.

Furthermore, as discussed above with respect to claim 1, *Sugahara, et al.* does not describe or suggest depositing a low dielectric constant oxidized organosilane layer in a process that uses both plasma and an oxidizing agent.

Therefore, *Sugahara, et al.* does not teach, show, or suggest a method comprising depositing on a substrate a plurality of layers, wherein one or more of the layers is a low dielectric constant oxidized organosilane layer comprising carbon, wherein the low dielectric constant oxidized organosilane layer is deposited in a plasma enhanced process from a mixture comprising a methylsilane compound and an oxidizing gas, the carbon content of the low dielectric constant oxidized organosilane layer is from 1% to 50% by atomic weight, and a top layer of the plurality of layers is a photoresist, as recited in amended claim 15. Applicants respectfully request withdrawal of the rejection of claim 15 and of claims 16-18, which depend thereon. Applicants respectfully request allowance of new claim 21, which depends on claim 15.

Claims 3 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sugahara, et al.* in view of *Matsuura* (U.S. Patent No. 6,124,641). Regarding claim 3, the Examiner acknowledges that *Sugahara, et al.* fails to disclose wherein the organosilane compound is methylsilane. The Examiner asserts that it would have been obvious to use the methylsilane used by *Matsuura* in a related process in *Sugahara, et al.'s* process because one of ordinary skill in the art would have been motivated to look

to alternative suitable methods of forming the organic oxide layer of *Sugahara, et al.* Applicants respectfully traverse the rejection of claim 3.

As discussed above with respect to claim 15, Applicants submit that *Sugahara, et al.* does not motivate and in fact teaches away from using a methylsilane compound and depositing films comprising Si-CH_3 bonds. *Matsuura* teaches that films comprising Si-CH_3 bonds are formed when using methylsilane or methylsilane and dimethylsilane as the precursor. Applicants submit that there is no motivation to use the methylsilane precursors provided by *Matsuura* to deposit films comprising Si-CH_3 bonds in *Sugahara, et al.'s* process which minimizes the formation of Si-CH_3 bonds in the deposited film. Applicants further submit that *Sugahara, et al.* in view of *Matsuura* does not provide a reasonable expectation of success for using the methylsilane precursors of *Matsuura* to deposit *Sugahara, et al.'s* films which have a lower Si-CH_3 content than conventional organic SOG films.

Thus, Applicants submit that *Sugahara, et al.* in view of *Matsuura* does not provide or suggest all of the limitations of claim 3, which specifies that the organosilane compound is methylsilane. Applicants respectfully request withdrawal of the rejection of claim 3.

Regarding claim 5, Applicants submit that claim 5 is patentable over *Sugahara, et al.* for the reasons discussed above with respect to claim 1, upon which claim 5 depends. Applicants further submit that the combination of *Sugahara, et al.* and *Matsuura* does not provide all of the limitations of claim 1, and thus does not provide all of the limitations of claim 5. Applicants respectfully request withdrawal of the rejection of claim 5.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sugahara, et al.* in view of *Jeng, et al.* (U.S. Patent No. 5,780,338). The Examiner states that *Jeng, et al.* teaches a method of etching a low dielectric oxidized organosilane layer using fluorine, carbon, and oxygen and that it would have been obvious to combine the teachings of *Sugahara, et al.* and *Jeng, et al.* to enable the etching of the dielectric layer of *Sugahara, et al.* according to the teachings of *Jeng, et al.* Applicants respectfully traverse the rejection.

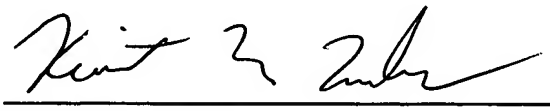
Jeng, et al. describes etching layers including a silicon oxide layer using carbon, fluorine, and oxygen. However, *Jeng, et al.* does not describe or suggest etching a low dielectric constant oxidized organosilane layer comprising carbon with carbon, fluorine, and oxygen. Thus, *Sugahara, et al.* in view of *Jeng, et al.* does not provide all of the limitations of claim 8. Applicants respectfully request withdrawal of the rejection of claim 8.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the office action. Therefore, Applicants believe that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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